Notes on the Systematic Status of the Eels *Neenchelys* and *Myroconger*

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Neenchelys

BÖHLKE (1960) SUGGESTED that eels of the genus *Neenchelys* possibly have overlapping branchiostegal rays and that, if they did, they should be assigned to the family Ophichthidae. Nelson (1966*a*) described the osteology of *Neenchelys buitendijki,* confirming the presence of overlapping branchiostegal rays, and for this and other reasons referred the genus *Neenchelys* to the family Ophichthidae, subfamily Echelinae. The present report, based on an examination of the holotype of *Neenchelys microtretus,* confirms the presence of overlapping branchiostegal rays in the type species of *Neenchelys.* Like those of *N. buitendijki* (Nelson, 1966*a,* fig. 2*A*), those of *N. microtretus* include six rays articulating with the dorsal portion of the ceratohyal and more than 25 others widely overlapping in the midline.

Myroconger

This genus and the family it represents apparently are known only from the holotype of *Myroconger compressus.* The specimen had been partly dissected, leaving the gill arches exposed, which allowed the following observations to be made: third and fourth upper pharyngeal tooth plates separate; first and second pharyngobranchials absent, the third supporting the tooth plates; basibranchials absent; independent rodlike hypobranchials in arches one–three, those of the third cartilaginous; fourth ceratobranchials not extended anteriorly, not separating the third arches of either side; fifth ceratobranchials apparently absent; ventral parts of the arches not meeting in the midline.

Myroconger has the frontal bones separated by a suture and therefore belongs to the anguilloid lineage of Regan (1912), including the Heterenchelidae, Anguillidae, Moringuidae, Xenocongridae, Dysomminidae, and Muraenidae (Nelson, 1966*b*). In completely lacking basibranchials, the arches of *Myroconger* differ from those of *Heterenchelys, Anguilla,* and *Moringua,* but resemble those of xenocongrids, *Dysommina,* and muraenids. In lacking a second pharyngobranchial they are unlike xenocongrids, but resemble *Dysommina* and muraenids. Like that of *Dysommina* the fourth arch of *Myroconger* is not appreciably enlarged and "pharyngeal jaws" like those of muraenids do not occur. Thus, the arches of *Myroconger* are most like those of *Dysommina.* The most notable differences include the presence in *Myroconger* of third hypobranchials (a primitive feature) and the apparent absence of fifth ceratobranchials (an advanced one).

What could be learned of the pharyngeal musculature also suggests a relationship with the more advanced eels of the anguilloid lineage, for a subpharyngealis occurs, as it does at least in *Moringua, Kaupichthys,* and muraenids, and retractor muscles have a small area of origin on the vertebral column, foreshadowing the large area of origin in some muraenids (Nelson, 1967).

These observations of *Myroconger* complete a review of gill arch structure for the families of anguilloid eels (Nelson, 1966*b*). Within this group, on the basis of gill arch structure there seem to be three main lines of specialization, each characterized by reduction of the gill arch skeleton: one leads toward the Moringuidae, another toward the Muraenidae, the other toward the Cyemidae. If the anguilloid eels are given the status of a suborder, these lines of specialization could be given the status of superfamilies. However, on the basis of gill arch structure alone it is difficult to distinguish between generalized members of these different lines, or to decide which if any Recent forms can be considered generalized muraenoids. Consequently, the following synopsis is offered more as a working hypothesis than as a final classification:

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Caudal fin continuous with dorsal and anal; no pelvic fins; frontal usually paired ..... suborder Anguilloidei

a. Jaws not produced; gill arch skeleton including at least rudimentary basibranchials ..... superfamily Anguilloidae (including families Heterenchelidae, Anguillidae, Moringuidae)

b. Jaws not produced; gill arch skeleton without basibranchials ..... superfamily Muraenoidae (including Xenocongridae, Dysomminidae, Myrocongridae, Muraenidae)

c. Jaws produced; gill arch skeleton with or without basibranchials ..... superfamily Nemichthyoidae (including Serrivomeridae, Nemichthyidae, Cyemidae)

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